

CLAIMS

1. An apparatus for decoding an MPEG picture stream, comprising:

an input unit operable to input an MPEG picture stream formed by an intra picture and a predictive coded picture;

a decoder operable to decode each of said pictures of said input MPEG picture stream to produce a decoding result;

a controller operable to instruct said decoder to start decoding;

a writing unit operable to store said decoding result in a picture memory; and

a reading unit operable to obtain output picture data from said picture memory;

wherein, when said predictive coded picture includes an intra slice or an intra macroblock, said decoder decodes said intra slice or said intra macroblock after being instructed to start decoding by said controller without waiting for said intra picture to be decoded.

2. An apparatus for decoding an MPEG picture stream as claimed in claim 1,

wherein said decoder is operable to decode each of said pictures of said input MPEG picture stream on the basis of a reference macroblock, and wherein, when said reference macroblock has previously been decoded to produce a reference decoding result stored in said picture memory, said

decoder is further operable to decode a non-intra slice and a non-intra macroblock of said predictive coded picture by using said reference decoding result after being instructed to start decoding by said controller without waiting for said intra picture to be decoded.

3. An apparatus for decoding an MPEG picture stream as claimed in claim 2, further including a storage unit operable to store a position of a macroblock decoded by said decoder,

wherein said decoder determines whether said reference macroblock has previously been decoded on the basis of a stored content of said storage unit.

4. An apparatus for decoding an MPEG picture stream as claimed in claim 3,

wherein said storage unit uses said picture memory as a storage medium for storing said position of said decoded macroblock.

5. An apparatus for decoding an MPEG picture stream as claimed in claim 1,

wherein, when said input MPEG picture stream is changed, and when said predictive coded picture of said changed input MPEG picture stream includes an intra slice or an intra macroblock, said decoder decodes said intra slice or said intra macroblock to produce a new decoding result without waiting for said intra picture of said changed input MPEG picture stream to be decoded, and said writing unit overwrites said picture memory with said new decoding result.

6. An apparatus for decoding an MPEG picture stream as claimed in claim 5,

wherein said decoder is operable to decode each of said pictures of said changed input MPEG picture stream on the basis of a reference macroblock, and wherein, when said reference macroblock has previously been decoded to produce a reference decoding result stored in said picture memory, said decoder is further operable to decode a non-intra slice and a non-intra macroblock of said predictive coded picture by using said reference decoding result without waiting for said intra picture of said changed input MPEG picture stream to be decoded.

7. A method for decoding an MPEG picture stream, comprising:

inputting an MPEG picture stream formed by an intra picture and a predictive coded picture;

providing an instruction to start decoding said input MPEG picture stream;

decoding each of said pictures of said input MPEG picture stream to produce a decoding result after said instruction to start decoding has been provided;

storing said decoding result in a picture memory; and

obtaining output picture data from said picture memory;

wherein, when said predictive coded picture includes an intra slice or an intra macroblock, said decoding

step includes decoding said intra slice or said intra macroblock after said step of providing said instruction to start decoding without waiting for said intra picture to be decoded.

8. A method for decoding an MPEG picture stream as claimed in claim 7,

wherein said decoding step includes decoding each of said pictures of said input MPEG picture stream on the basis of a reference macroblock, and wherein, when said reference macroblock has previously been decoded to produce a reference decoding result stored in said picture memory, said decoding step further includes decoding a non-intra slice and a non-intra macroblock of said predictive coded picture by using said reference decoding result after said step of providing said instruction to start decoding without waiting for said intra picture to be decoded.

9. A method for decoding an MPEG picture stream as claimed in claim 8, further including storing a position of a macroblock decoded in said decoding step in a storage medium,

wherein said decoding step further includes determining whether said reference macroblock has previously been decoded on the basis of a stored content of said storage medium.

10. A method for decoding an MPEG picture stream as claimed in claim 9,

wherein said picture memory comprises said storage medium.

11. A method for decoding an MPEG picture stream as claimed in claim 7,

wherein, when said input MPEG picture stream is changed, and when said predictive coded picture of said changed input MPEG picture stream includes an intra slice or an intra macroblock, said decoding step includes decoding said intra slice or said intra macroblock to produce a new decoding result without waiting for said intra picture of said changed input MPEG picture stream to be decoded, and said storing step includes overwriting said picture memory with said new decoding result.

12. A method for decoding an MPEG picture stream as claimed in claim 11,

wherein said decoding step includes decoding each of said pictures of said changed input MPEG picture stream on the basis of a reference macroblock, and wherein, when said reference macroblock has previously been decoded to produce a reference decoding result stored in said picture memory, said decoding step further includes decoding a non-intra slice and a non-intra macroblock of said predictive coded picture by using said reference decoding result without waiting for said intra picture of said changed input MPEG picture stream to be decoded.

13. A digital broadcast receiving apparatus for receiving a digital broadcast signal, comprising:

a digital front end operable to select a desired transmission channel from the received digital

broadcast signal and to demodulate a transport stream transmitted by said desired transmission channel;

a demultiplexer operable to extract a transport stream of a desired program from said demodulated transport stream, said extracted transport stream including a plurality of MPEG pictures;

a decoder operable to decode each of a plurality of MPEG pictures of said extracted transport stream to produce a decoding result;

a CPU operable to instruct said decoder to start decoding; and

a picture memory operable to store said decoding result;

wherein said plurality of MPEG pictures are formed by an intra picture and a predictive coded picture, and when said predictive coded picture includes an intra slice or an intra macroblock, said decoder decodes said intra slice or said intra macroblock after being instructed to start decoding by said CPU without waiting for said intra picture to be decoded.

14. A digital broadcast receiving apparatus as claimed in claim 13,

wherein said decoder is operable to decode each of said plurality of MPEG pictures on the basis of a reference macroblock, and wherein, when said reference macroblock has previously been decoded to produce a reference decoding result stored in said picture memory, said decoder is

further operable to decode a non-intra slice and a non-intra macroblock of said predictive coded picture by using said reference decoding result after being instructed to start decoding by said CPU without waiting for said intra picture to be decoded.

15. A digital broadcast receiving apparatus as claimed in claim 14, further including a storage unit operable to store a position of a macroblock decoded by said decoder, wherein said decoder determines whether said reference macroblock has previously been decoded on the basis of a stored content of said storage unit.